

IN THE CLAIMS:

1. (Cancelled)

2. (Currently Amended) A panel display apparatus ~~for displaying an image in a discharge sustain period~~, comprising:

~~a gas discharge panel in which a plurality of discharge cells are arranged in the form of matrix a plurality of pairs of first and second electrodes covered with a dielectric are arranged between a pair of substrates; and~~

~~a driving circuit which applies a write pulse to selected discharge cells of the plurality of discharge cells to write the image accumulates a wall charge on the dielectric to write an image, and successively applies a plurality of sustain pulses which alternate in polarity to each of the plurality of discharge cells to the first electrode and the second electrode so that a potential of the second electrode relative to the first electrode alternates in polarity, to perform a sustain discharge in the selected discharge cells areas where the wall charge has been accumulated,~~

~~wherein immediately before a leading edge of each sustain pulse which is applied to the discharge cell, the driving circuit applies a pulse that is opposite in polarity to the sustain pulse to the discharge cell a voltage to at least one of the first electrode and the second electrode so that a short pulse, which is opposite in polarity to a potential generated between the first electrode and the second electrode by the sustain pulse, is formed between the first electrode and the second electrode, for a predetermined period that is no more than 100 ns.~~

3. (Currently Amended) The panel display apparatus of Claim 2, wherein an absolute value of a voltage of ~~the pulse that is opposite in polarity to the sustain pulse~~ ~~the short~~

pulse formed by the driving circuit is no smaller than an absolute value of a voltage of the sustain pulse.

4. (Cancelled)

5. (Currently Amended) The panel display apparatus of Claim 3, wherein a time during which the absolute value of the voltage of the short pulse is no smaller than the absolute value of the voltage of the sustain pulse is no more than 50 ns.

6. (Currently Amended) The panel display apparatus of Claim 2, wherein an absolute value of a voltage of the pulse that is opposite in polarity to the sustain pulse the short pulse formed by the driving circuit is no smaller than 1.5 times an absolute value of a voltage of the sustain pulse.

7. (Currently Amended) A panel display apparatus ~~for displaying an image in a discharge sustain period~~, comprising:

~~a gas discharge panel in which a plurality of discharge cells are arranged in the form of matrix a plurality of pairs of first and second electrodes covered with a dielectric are arranged between a pair of substrates; and~~

~~a driving circuit which (a) applies a write pulse to selected discharge cells of the plurality of discharge cells accumulates a wall charge on the dielectric to write the image, and [(b)] successively applies a plurality of sustain pulses which alternate in polarity, to each of the plurality of discharge cells to the first electrode and the second electrode so that a potential of the second electrode relative to the first electrode alternates in polarity, to perform a sustain discharge in the selected discharge cells areas where the wall charge has been accumulated,~~

wherein immediately before a leading edge of at least a sustain pulse of the plurality of sustain pulses which is first applied to the discharge cell, the driving circuit applies a pulse that is opposite in polarity to the sustain pulse, to the discharge cell a voltage to at least one of the first electrode and the second electrode so that a short pulse, which is opposite in polarity to a potential generate between the first electrode and the second electrode by the sustain pulse, is formed between the first electrode and the second electrode, for a predetermined period that is no ore than 100 ns.

8. (Currently Amended) The panel display apparatus of Claim 7, wherein an absolute value of a voltage of the pulse that is opposite in polarity to the sustain pulse the short pulse formed by the driving circuit is no smaller than an absolute value of a voltage of the sustain pulse.

9. (Currently Amended) The panel display apparatus of Claim 8, wherein a time during which the absolute value of the voltage of the short pulse is no smaller than the absolute value of the voltage of the sustain pulse is no more than 100 ns.

10. (Currently Amended) The panel display apparatus of Claim 8, wherein a time during which the absolute value of the voltage of the short pulse is no smaller than the absolute value of the voltage of the sustain pulse is no more than 50 ns.

11. (Currently Amended) The panel display apparatus of Claim 7, wherein an absolute value of a voltage of the pulse that is opposite in polarity to the sustain pulse the short pulse formed by the driving circuit is no smaller than 1.5 times an absolute value of a voltage of the sustain pulse.

12-16. (Cancelled)

17. (Currently Amended) A panel display apparatus for displaying an image in a discharge sustain period, comprising:

a gas discharge panel in which a plurality of discharge cells are arranged in the form of matrix between a pair of substrates; and

a driving circuit which applies a write pulse to selected discharge cells of the plurality of discharge cells to write the image, and successively applies a plurality of sustain pulses ~~which alternate in polarity~~ to each of the plurality of discharge cells to perform a sustain discharge in the selected discharge cells, wherein

an absolute value of a voltage of each sustain pulse which is applied to the discharge cell is higher during a first period than a second period, the first period being a fixed period from a leading edge of the sustain pulse, and the second period being a period from a lapse of the fixed period to a trailing edge of the sustain pulse,

a highest absolute value of the voltage of the sustain pulse in the first period exceeds an absolute value of a discharge firing voltage of the discharge cell,

the absolute value of the voltage of the sustain pulse in the second period is below the absolute value of the discharge firing voltage of the discharge cell, and

a time during which the absolute value of the voltage of the sustain pulse exceeds the absolute value of the discharge firing voltage is no more than 100 ns.

18. (Currently Amended) A panel display apparatus for displaying an image in a discharge sustain period, comprising:

a gas discharge panel in which a plurality of discharge cells are arranged in the form of matrix between a pair of substrates; and

a driving circuit which applies a write pulse to selected discharge cells of the plurality of discharge cells to write the image, and successively applies a plurality of sustain pulses ~~which alternate in polarity~~ to each of the plurality of discharge cells to perform a sustain discharge in the selected discharge cells, wherein

an absolute value of a voltage of each sustain pulse which is applied to the discharge cell is higher during a first period than a second period, the first period being a fixed period from a leading edge of the sustain pulse, and the second period being a period from a lapse of the fixed period to a trailing edge of the sustain pulse, and

immediately after the trailing edge of the sustain pulse, the driving circuit applies a pulse that is opposite in polarity to the sustain pulse, to the discharge cell for a predetermined period that is no more than 100 ns.

19. (Currently Amended) A panel display apparatus comprising:

a gas discharge panel in which a plurality of discharge cells are arranged between a pair of substrates; and

a driving circuit which (a) applies a write pulse to selected discharge cells of the plurality of discharge cells to write an image, and (b) successively applies a plurality of sustain

pulses ~~which alternate in polarity~~, to each of the plurality of discharge cells to perform a sustain discharge in the selected discharge cells,

wherein an absolute value of a voltage of at least a sustain pulse of the plurality of sustain pulses which is first applied to the discharge cell is higher during a first period than a second period, the first period being a fixed period from a leading edge of the sustain pulse, and the second period being a period from a lapse of the fixed period to a trailing edge of the sustain pulse, and

a time during which the absolute value of the voltage of the sustain pulse exceeds an absolute value of a discharge firing voltage of the discharge cell is no more than 100 ns.

20. (Original) The panel display apparatus of Claim 19,

wherein a highest absolute value of the voltage of the sustain pulse in the first period exceeds [[an]] the absolute value of a discharge firing voltage of the discharge cell, and

the absolute value of the voltage of the sustain pulse in the second period is below the absolute value of the discharge firing voltage of the discharge cell.

21. (Cancelled)

22. (Original) The panel display apparatus of Claim 19, wherein immediately after the trailing edge of the sustain pulse, the driving circuit applies a pulse that is opposite in polarity to the sustain pulse, to the discharge cell for a predetermined period.

23. (Currently Amended) A panel display apparatus for displaying an image in a discharge sustain period, comprising:

a gas discharge panel in which a plurality of discharge cells are arranged in the form of matrix between a pair of substrates; and

a driving circuit which applies a write pulse to selected discharge cells of the plurality of discharge cells to write the image, and successively applies a plurality of sustain pulses ~~which alternate in polarity~~ to each of the plurality of discharge cells to perform a sustain discharge in the selected discharge cells,

wherein immediately after a trailing edge of each sustain pulse which is applied to the discharge cell, the driving circuit applies a pulse that is opposite in polarity to the sustain pulse, to the discharge cell for a predetermined period that is no more than 100 ns.

24. (Cancelled)

25. (Currently Amended) A panel display apparatus comprising:

a gas discharge panel in which a plurality of discharge cells are arranged between a pair of substrates; and

a driving circuit which (a) applies a write pulse to selected discharge cells of the plurality of discharge cells to write an image, and (b) successively applies a plurality of sustain pulses ~~which alternate in polarity~~, to each of the plurality of discharge cells to perform a sustain discharge in the selected discharge cells,

wherein immediately after a trailing edge of at least a sustain pulse of the plurality of sustain pulses which is first applied to the discharge cell, the driving circuit applies a pulse that is opposite in polarity to the sustain pulse, to the discharge cell for a predetermined period that is no more than 100 ns.

26. (Cancelled)

27. (Currently Amended) A panel display apparatus comprising:

a gas discharge panel in which a plurality of pairs of first and second electrodes covered with a dielectric are arranged between a pair of substrates; and

a driving circuit which accumulates a wall charge on the dielectric to write an image, and successively applies a plurality of sustain pulses ~~which alternate in polarity between each pair of first and second electrodes alternately to the first electrode and the second electrode~~ to perform a sustain discharge in areas where the wall charge has been accumulated,

wherein when applying each sustain pulse ~~between the pair of first and second electrodes~~, the driving circuit applies forms a first voltage between the ~~pair of~~ first and second electrodes for a fixed period from a leading edge of the sustain pulse, and applies forms a second voltage between the ~~pair of~~ first and second electrodes for a period from a lapse of the fixed period to a trailing edge of the sustain pulse, the second voltage having a smaller absolute value than the first voltage, and

a time during which the absolute value of the first voltage of the sustain pulse exceeds an absolute value of a discharge firing voltage of the discharge cell is no more than 100 ns.

28. (Currently Amended) The panel display apparatus of Claim 27, wherein the driving circuit applies forms the first and second voltages between the pair of first and second electrodes, by applying two pulses that are same or opposite in polarity and overlap in time, respectively to the first electrode and the second electrode.

29. (Currently Amended) A panel display apparatus comprising:

a gas discharge panel in which a plurality of pairs of first and second electrodes covered with a dielectric are arranged between a pair of substrates; and

a driving circuit which accumulates a wall charge on the dielectric to write an image, and successively applies a plurality of sustain pulses ~~which alternate in polarity~~ applies at least one sustain pulse ~~between each pair of first and second electrodes~~ to the first electrode and the second electrode so that a potential of the second electrode relative to the first electrode alternates in polarity, to perform a sustain discharge in areas where the wall charge has been accumulated,

wherein immediately after a trailing edge of each sustain pulse ~~which is applied between the pair of first and second electrodes~~, the driving circuit applies a pulse that is opposite in polarity to the sustain pulse, ~~between the pair of first and second electrodes~~ a voltage so that a short pulse, which is opposite in polarity to a potential generated between the first electrode and the second electrode by the sustain pulse, is formed between the first electrode and the second electrode, for a predetermined period that is no more than 100 ns.

30. (Currently Amended) The panel display apparatus of Claim 29, wherein the driving circuit ~~applies the sustain pulse and the pulse of the opposite polarity between the pair of first and second electrodes~~ forms the short pulse between the first electrode and the second electrode, by applying two pulses that are same in polarity and overlap in time, respectively to the first electrode and the second electrode.

31. (Currently Amended) A driving method for displaying an image in a discharge sustain period in a gas discharge panel in which ~~a plurality of discharge cells~~ a plurality of pairs of first and second electrodes covered with a dielectric are arranged between a pair of substrates, comprising:

~~a writing step for applying a write pulse to selected discharge cells of the plurality of discharge cells accumulating a wall charge on the dielectric~~ to write the image; and

~~a discharge sustaining step for successively applying a plurality of sustain pulses which alternate in polarity, to each of the plurality of discharge cells to the first electrode and the second electrode so that a potential of the second electrode relative to the first electrode alternates in polarity, to perform a sustain discharge in the selected discharge cells areas where the wall charge has been accumulated,~~

~~wherein in the discharge sustaining step, immediately before a leading edge of each sustain pulse which is applied to the discharge cell, a pulse that is opposite in polarity to the sustain pulse is applied to the discharge cell, a voltage is applied to at least one of the first electrode and the second electrode so that a short pulse, which is opposite in polarity to a potential generated between the first electrode and the second electrode by the sustain pulse, is formed between the first electrode and the second electrode, for a predetermined period that is not more than 100 ns.~~

32. (Currently Amended) A driving method for displaying an image in a discharge sustain period in a gas discharge panel in which ~~a plurality of discharge cells~~ a plurality of pairs

of first and second electrodes covered with a dielectric are arranged between a pair of substrates, comprising:

a writing step for applying a write pulse to selected discharge cells of the plurality of discharge cells accumulating a wall charge on the dielectric to write the image; and

a discharge sustaining step for successively applying a plurality of sustain pulses which alternate in polarity, to each of the plurality of discharge cells to the first electrode and the second electrode so that a potential of the second electrode relative to the first electrode alternates in polarity, to perform a sustain discharge in the selected discharge cells areas where the wall charge has been accumulated,

wherein in the discharge sustaining step, immediately before a leading edge of at least a sustain pulse of the plurality of sustain pulses which is first applied to the discharge cell, a pulse that is opposite in polarity to the sustain pulse is applied to the discharge cell, a voltage is applied to at least one of the first electrode and the second electrode so that a short pulse, which is opposite in polarity to a potential generated between the first electrode and the second electrode by the sustain pulse, is formed between the first electrode and the second electrode, for a predetermined period that is no more than 100 ns.

33. (Currently Amended) A driving method for displaying an image in a discharge sustain period in a gas discharge panel in which a plurality of discharge cells are arranged between a pair of substrates, comprising:

a writing step for applying a write pulse to selected discharge cells of the plurality of discharge cells to write the image; and

a discharge sustaining step for successively applying a plurality of sustain pulses ~~which alternate in polarity~~, to each of the plurality of discharge cells to perform a sustain discharge in the selected discharge cells,

wherein in the discharge sustaining step, an absolute value of a voltage of each sustain pulse which is applied to the discharge cell is higher during a first period than a second period, the first period being a fixed period from a leading edge of the sustain pulse, and the second period being a period from a lapse of the fixed period to a trailing edge of the sustain pulse, and

a time during which the absolute value of the voltage of the sustain pulse exceeds an absolute value of a discharge firing voltage of the discharge cell is no more than 100 ns.

34. (Currently Amended) A driving method for displaying an image in a discharge sustain period in a gas discharge panel in which ~~a plurality of discharge cells~~ a plurality of pairs of first and second electrodes covered with a dielectric are arranged between a pair of substrates, comprising:

~~a writing step for applying a write pulse to selected discharge cells of the plurality of discharge cells accumulating a wall charge on the dielectric~~ to write the image; and

a discharge sustaining step for successively applying a plurality of sustain pulses ~~which alternate in polarity, to each of the plurality of discharge cells to the first electrode and the second electrode so that a potential of the second electrode relative to the first electrode alternates in polarity, to perform a sustain discharge in the selected discharge cells areas where the wall charge has been accumulated,~~

wherein in the discharge sustaining step, immediately after a trailing edge of each sustain pulse ~~which is applied to the discharge cell, a pulse that is opposite in polarity to the sustain pulse is applied to the discharge cell, a voltage is applied so that a short pulse, which is opposite in polarity to a potential generated between the first electrode and the second electrode by the sustain pulse, is formed between the first electrode and the second electrode~~, for a predetermined period that is not more than 100 ns.

35-38. (Cancelled)

39. (New) The panel display apparatus of Claim 2,

wherein the driving circuit applies the plurality of sustain pulses alternately to the first electrode and the second electrode, and, immediately before the leading edge of each sustain pulse, applies a short pulse of a same polarity as the sustain pulse to one of the first electrode and the second electrode to which the sustain pulse is to be applied, for the predetermined period that is no more than 100 ns; and

wherein the sustain pulses are applied to scan electrodes and sustain electrodes alternately.

40. (New) The panel display apparatus of Claim 2,
wherein the driving circuit applies the plurality of sustain pulses alternately to the first electrode and the second electrode, and, immediately before the leading edge of each sustain pulse, applies a short pulse of a same polarity as the sustain pulse to one of the first electrode and the second electrode to which the sustain pulse is not to be applied, for the predetermined period that is no more than 100 ns; and

wherein the sustain pulses are applied to scan electrodes and sustain electrodes coincidentally.